Exelon Generation

James A. FitzPatrick NPP
P.O. Box 110
Lycoming, NY 13093
Tel 315-349-6024 Fax 315-349-6480

Timothy C. Peter
Plant Manager – JAF

JAFP-19-0037
March 15, 2019

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

James A. FitzPatrick Nuclear Power Plant
Renewed Facility Operating License No. DPR-059
NRC Docket No. 50-333

Subject: LER: 2019-001, Transitory Secondary Containment Differential Pressure Excursion

Dear Sir or Madam:

This report is being submitted pursuant to 10 CFR 50.73(a)(2)(v)(C).

There are no new regulatory commitments contained in this report.

Questions concerning this report may be addressed to Mr. William Drews, Regulatory Assurance Manager, at (315) 349-6562.

Sincerely,

Timothy C. Peter
Plant Manager

TCP/WD/mh

Enclosure: LER: 2019-001, Transitory Secondary Containment Differential Pressure Excursion

cc: USNRC, Region I Administrator
USNRC, Project Manager
USNRC, Resident Inspector
INPO Records Center (ICES)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
James A. FitzPatrick Nuclear Power Plant	05000333	1 OF 3

4. Title
Secondary Containment Differential Pressure Exceeded the Technical Specification Surveillance Requirement

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
									N/A	N/A
1	16	2019	2019	001	00	03	15	2019	N/A	N/A

9. Operating Mode: 1

10. Power Level: 100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (*Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☑ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
	☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Mr. William Drews, Regulatory Assurance Manager	315-349-6562

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
	NG			Y					

14. Supplemental Report Expected: ☐ Yes (If yes, complete 15. Expected Submission date) ☑ No

15. Expected Submission Date: Month / Day / Year

Abstract (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 16, 2019, at 0137, with James A. FitzPatrick Nuclear Power Plant at 100% power, Secondary Containment differential pressure exceeded the Technical Specification Surveillance Requirement 3.6.3.1.1 of greater than or equal to 0.25 inches of vacuum water gauge while isolating Reactor Building Ventilation. This condition existed for approximately ten (10) seconds and returned to within limits when the isolation sequence was completed.

The differential pressure did not exceed 0 so there was no unmonitored exfiltration and there were no actual radiological release events. When Secondary Containment did not meet the Technical Specification requirement for differential pressure, Secondary Containment was Inoperable. Therefore, this event is reportable under 10 CFR 50.73(a)(2)(v)(C).

A differential pressure excursion during transition from normal to isolation mode of the Reactor Building Ventilation System is an expected condition, and attributable to the design of the system. The cause of exceeding the differential pressure requirement has been determined not to be associated with a component failure or equipment malfunction. Corrective actions include declaring Secondary Containment Inoperable when manually isolating Reactor Building Ventilation and increase the normal differential pressure in Secondary Containment.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV N0.
James A. FitzPatrick Nuclear Power Plant	05000 – 333	2019	– 001	– 00

NARRATIVE

Background

The Secondary Containment (SC) [EIIS identifier: NG] is a structure comprised of the Reactor Building that surrounds the primary containment and refuel equipment. Its safety function is designed to provide containment for postulated accident scenarios: loss-of-coolant accident and refueling accident. This structure forms a control volume that serves to hold up and dilute fission products in the event of an accident. The system was designed to include a differential pressure vacuum (DP) such that external atmosphere would leak into containment rather than fission products leak out.

The systems which maintain the DP is the normal Reactor Building Ventilation (RBV) system [VA] and the safety-related Standby Gas Treatment (SBGT) system [BH]. During a postulated accident scenario, the normal RBV isolates and the SBGT initiates to filter gas from SC to the environment. SBGT has the capacity to maintain DP. (Positive DP refers to a lower pressure inside SC in comparison to environmental air pressure)

Event Description

On January 16, 2019, at 0137, with James A. FitzPatrick Nuclear Power Plant (JAF) at 100% power, SC was manually placed into isolation mode using the operating procedure OP-51A to prepare for equipment maintenance. During this evolution, the DP exceeded the Technical Specification (TS) Surveillance Requirement SR 3.6.3.1.1 of greater than or equal to 0.25 inches of vacuum water gauge for approximately ten (10) seconds and returned to within limits by the SBGT system when the isolation sequence was completed. Operators identified this condition using the plant computer and recorded the lowest value at 0.14 inches of vacuum water gauge. An initial notification was submitted to the NRC by ENS 53828 per 10 CFR 50.72(b)(3)(v)(C).

Event Analysis

The SC DP tends to move towards zero, when the RBV is switched from normal to an isolation mode. The cause of the DP change during the transition phase is the difference in closure time for the RBV supply and exhaust isolation valves. The exhaust valves are designed to close within the first 5 seconds and the supply is designed to close within 15 seconds. Therefore, the supply fans keep bringing outside air in for up to 10 seconds after the exhaust valves have isolated, causing DP to lower. This may be observed from the readings obtained in the control room for the SC pressure during the transition phase.

When RBV is operating, DP is controlled much higher than the 0.25 inches of vacuum water gauge; such that if an isolation is initiated the change due to the transition may not exceed the SR limit. On January 11, 2019, work to clean RBV cooling coils was performed due to an increasing trend in SC DP. This lowered the average normal DP from about 1.5 to 0.8. Therefore, during this event, the isolation transition change had a lower starting point and was able to exceed the TS requirement.

The procedure used to isolate RBV during this event was OP-51A and it instructs starting SBGT to raise DP prior to isolating RBV. Operators did not expect that isolation transition to lower DP below the TS requirement because the normal and SBGT margin would normally be enough. Therefore, SC was not declared Inoperable in preparation for the planned maintenance. When SR 3.6.3.1.1 requirement of greater than or equal to 0.25 inches of vacuum water gauge was exceeded, TS 3.6.3.1 was not met, Secondary Containment was Inoperable, and this event is reportable per 10 CFR 50.73(a)(2)(v)(C).

Cause

This event was caused by cleaning of the coolers which lowered normal running differential pressure such that when the isolation mode was initiated the transitory differential pressure change went lower than expected. Secondary Containment differential pressure may exceed 0.25 inches water vacuum when the RBV is switched from normal to an isolation mode because the system is designed with a difference in closure time for the supply and exhaust isolation valves. However, the cause of this event is not associated with any component failure or malfunction.

Similar Events

FitzPatrick, LER: 2015-006-01, Transitory Secondary Containment Differential Pressure Excursions, JAFP-16-0002, dated February 4, 2016.

Corrective Actions

Completed Corrective Actions

- Revised OP-51A to declare SC Inoperable when manually isolating RBV.
- Change DP controller 66DPC-112 setting to increase margin (WO 04759888).

Future Corrective Actions

- Submit License Amendment Request for TSTF-551, “Revise Secondary Containment Surveillance Requirements.”

Safety Significance

Nuclear safety - This event did not have any actual or potential impact on nuclear safety.

Industrial safety - This event did not have any actual or potential impact on industrial safety.

Radiological safety – In this event, the DP never exceeded 0 so there was no SC unmonitored exfiltration and there were no actual radiological release events during the period when the TS requirement was not met.

The potential for a radiological consequence is only applicable during the time that SC was below 0.25 inches water vacuum DP. During the Design Basis Loss of Coolant Accident event, Drywell High Pressure or Low Reactor Water Level signals would isolate SC. Any potential Fuel damage or release of radiological materials caused by this event scenario is not expected until after RBV isolation. During the Design Basis Refueling Accident event, a release of radioactive material by a dropped fuel assembly during refuel operations would be detected by Radiation Monitors and initiate SC isolation. The type of pressure changes reported in this LER could result in some exfiltration before the isolation was complete; however, the amount of exfiltration, consequentially the offsite and control room doses, would remain below regulatory limits as analyzed.

The difference in closing time between the supply and exhaust valves of the reactor building during transition from normal to isolate mode represents a potential exfiltration pathway for released activity. This potential exfiltration pathway has been conservatively quantified and is included in the JAF design basis accident analyses. Dose consequence results remain well below the 10 CFR 100 and 10 CFR 50.67 guidelines for all postulated accident conditions. This condition does not adversely impact that ability of RBV to isolate or SBGT to activate. Therefore, the capability of SC to mitigate the consequence of an accident is unaffected.

References

- JAF Issue Report – IR 04211279, January 16, 2019
- Nuclear Safety Evaluation: JAF-SE-96-071, Revision 2